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AUTHOR Januszewski, Al
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ABSTRACT

This presentation provides conceptual frameworks for understanding critics of educational technology; these frameworks are developed by using a series of concepts, approaches, and techniques of historical analysis from the area of intellectual history. The difference between study in the history of ideas and the history of culture is noted. The following problems with the way that the history of ideas is conducted as a research method are identified: the "whole" of the concept is neglected; an elitist perspective; insufficient concern with content; and lack of objectivity. Factors in the history of ideas and four types of definitions are examined. The presentation format revolves around the following conceptual frameworks for analyzing the criticisms of educational technology: (1) concerns about the development of man-machine systems, (2) concerns about technological momentum; (3) concerns about individualizing instruction; (4) concerns about gender bias; and, (5) concerns about dehumanization. (Contains 19 references.) (AEF)

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Title:

Understanding the Critics of Educational Technology

Authors:

Al Januszewski
A. Betrus, D. Dyer, E. Schnieder, M. Mangione, G. Hewitt
while associated with SUNY Potsdam

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Purpose

The purpose of this presentation is to provide some conceptual frameworks for understanding critics of Educational Technology. These conceptual frameworks will be developed and fleshed out by using a series of concepts, approaches and techniques of historical analysis from the area of Intellectual History, specifically the History of Ideas. We hope to demonstrate how studying history can help members of the field of Educational Technology to gain a clearer understanding of the problems and challenges that they face.

This study should help to answer the questions 'why do critics of educational technologists think the way they do about educational technology?' and 'how has that way of thinking changed with time?'. As historian George Boas stated, "the history of ideas tells us among other things how we got to think the way we do-and if that is not of importance one wonders what is" (Boas, 1969, p. 3).

In this study, understanding the critics of the concept of educational technology is the goal. But understanding has not always been seen as a useful end by many of those involved in the field of educational technology (Yeaman, 1990). Many in the field thought that an "understanding" was useful in so far as it was a necessary step in accomplishing some goal or task. They considered it to be a necessary step toward explaining or predicting a desired outcome (Koetting, 1983). Usually the larger goal was to provide a prescription to be used in professional practice. This study is not expected to provide any new prescriptions for action, nor is it undertaken with the aim of predicting what any new definition of educational technology might be. It is undertaken with the intent of bringing some of the less obvious ideas that are involved in educational technology to a more conscious level.

In order to fairly assess the critics of educational technology and their history one must decide on an inception point for the field of educational technology in order to begin the analysis. One could trace the beginnings of educational technology back to the educational practices of the ancient Greeks, or Comenius, or Pestolozzi, or Herbart (Saettler, 1990). But this could be somewhat misleading because much of modern day education has its beginnings in the ideas of these individuals. It would be more accurate to say that educational technology is a twentieth century phenomenon with its roots in the educational ideas of the progressive education movement (Shrock, 1990) and with the onset of the industrial revolution. The position taken in this presentation is that it was not so-called empirical considerations applied to schooling that led to the construction and development of the idea of educational technology. It was the interpretation science and industrial development, which were of great social and psychological significance, that contributed to the development of the concept of educational technology (Kliebard, 1987; Callahan, 1962).

Methodological Concerns

The history of ideas: a description of an umbrella like approach

Studies in history (in this case of educational technology) can be viewed from differing domains of intellectual history (Higham, 1977). Intellectual history is the study of the role of human thought in shaping the history of some given entity or occurrence. Intellectual history can itself be analyzed in terms of two contrasting tendencies or methods that are followed to investigate the role of thought in history. The essential difference between these two methods has to do with the level of conscious thought that a historian chooses to highlight (Veysey, 1977). Studies in the history of ideas often cross traditional disciplinary boundaries seeking important or "great works", and coherent expressions of thought written about a topic in question. Studies in what is called the history of culture focus more on the development of the group consciousness and the multiple topics or influences that help to shape the thought processes of a group.

The difference between the history of ideas and the history of culture is a matter of degree. There is much to be learned from the study of how consciously articulated ideas become a part of a "thought collective" in a given field of study (Fleck, 1979; Kuhn, 1970). Although these two approaches to intellectual history have different purposes, they complement and support each other (Higham, 1977).

As originally conceived, the history of ideas approach was both a method and a theory of history (Lovejoy, 1940). Studies of the history of ideas often analyzed some particular idea at a singular point in time,

exemplified by Hollinger's (1985) *In the American Province: The Problem of Pragmatism in American History*. They also could be descriptions of the changes in the meanings of particular ideas over time, such as Lovejoy's (1940) *Great Chain of Being*. As a method, the history of ideas focused on the "root ideas" (Lovejoy, 1940) which constituted a broader concept or idea. This approach was similar to the approach used in analytic philosophy which developed in the early twentieth century. These root ideas were often the "necessary and sufficient conditions" of the idea. Establishing these conditions established the boundaries of a particular idea. The reasoning was that if the essential components of an idea could be understood, then the meaning of the idea would become clear.

The history of ideas is still concerned with much of the same subject matter as it always has been, but now it seems to be a much "looser" approach in which the distinction between the history of ideas and the history of culture has diminished, as in Foucault's studies such as *The Archaeology of Knowledge* (1972) and *The Order of Things* (1970). Studies under both labels have been used to examine the same topics. In fact, many scholars believe that the titles "history of ideas" and "history of culture" should be discarded in favor of intellectual history (Kelley, 1990). What may be of some interest to the field of educational technology is that the history of ideas has included both the ultra rational and objective studies of Lovejoy (where if the proper analysis were conducted the truth would reveal itself) and the postmodern work of Foucault (where he tried to discredit any a priori method).

Potential problems with the approach

There are at least four potential difficulties with the way that the history of ideas is conducted as a research method. First, the necessary and sufficient conditions approach has been called "atomistic" (Mink, 1968). The criticism here is that by concentrating on the component parts or root ideas of a particular concept, the "whole" of the concept or idea is neglected. It is argued that while it is important to identify the components of an idea, it is the interaction of these components or root ideas that give meaning to the whole of the idea under study. The atomistic nature of the traditional method of the history of ideas relegates this interaction to a secondary status. This criticism may be characterized by the conventional logic that "the whole is greater than the sum of its parts", a notion that is associated with systems theory in the field of educational technology.

Second, it has been suggested that the traditional approach results in an elitist perspective (de Carvalho, 1988). The written record of the past is limited. By and large, the records that exist today were written by people, most often males, who were either wealthy or were afforded the special opportunity to record their thoughts and observations. In proportion, very few documents exist that were produced by "commoners". Commoners simply did not have the opportunity to contribute to the literature in the way that elites could. This resulted in a written record which was largely produced by elites. Focusing solely on this written record could result in a limited perspective on the subject being studied if this limitation is not properly acknowledged in advance.

Third, it has been noted that the traditional approach is not sufficiently concerned with matters of context. While it is true that the purpose of this method is to understand the context in which a term is used or an idea is expressed, it has not often acknowledged that the investigator is also operating within a specific context: the present. Without properly considering the context in which the investigator is working, the outcome of a particular study may not be "objective" (Mink, 1968). Due in part to these criticisms the thought that the history of ideas is a singular methodology seems to have faded. The history of ideas is now more frequently thought of as a form of intellectual history (Higham, 1977; Vesey, 1977).

Finally, the anti methodological stance taken by Foucault has brought the entire notion of objectivity into question. Without any possibility of an objective history the utility of historical projects has been called into serious question.

There is no single correct way to conduct a study in the history of ideas (the history of ideas is to historical/conceptual research what survey research is to quantitative research - there are many factors which are specific to individual accounts). The history of ideas has become an umbrella concept where the specific procedures of investigation and analysis are defined differently in each study. Many historians who work in this area agree that there are several important factors to consider when conducting a study in the history of ideas.

Five factors in the history of ideas

1) Have precise boundaries for the idea being studied (l ovejoy, 1940; Boas, 1969; Kelley, 1990).

2) Be aware of the context in which the idea is being studied. Meanings of words and the ideas that they connote change with time (Lovejoy, 1940; Boas, 1969; Fleck, 1979; Kelley, 1990).

3) Be prepared to cross traditional disciplinary boundaries when studying an idea (Lovejoy, 1940; Boas, 1969; Kelley, 1990).

4) Be aware of the 'metaphysical pathos', the attitude a writer portrays toward the idea. The language used by the writer can show an idea in a positive or negative light (Lovejoy, 1940; Boas, 1969).

5) Remember that the history of ideas is not confined to semantics. Ideas often have more than one name (Lovejoy, 1940; Boas, 1969).

Many analyses now fit under the umbrella of the history of ideas.

Definitions and historical studies

Definitions are important when studying history. They are especially important when conducting studies in the history of ideas because definitions often set the boundaries for a study. Historian David Fischer (1971) identified fifteen kinds of definitions that historians have frequently used in their work. He reasoned that using different kinds of definitions in studies may yield different results.

> There are many different kinds of formal definition. A historian ought to choose consciously and carefully from the range of possibilities available to him. Imprecision results not merely from an incomplete or inaccurate or inconsistent definition, but also from the use of an inappropriate definitional type. It could be one or more of the following types, *some of which overlap* (p. 277).

Of the fifteen definitional types posited by Fischer, there are four that are of particular interest for this presentation on educational technology. They are:

1. A definition by genus and difference locates a term within a larger class, and then supplies specific differences (p. 277).

2. A theoretical definition might include a statement of principles involved in an idea (p. 278).

3. An analytical definition defines a thing by detailing its parts (p. 279).

4. A stipulative definition introduces a wholly new expression into the language or gives a new and special meaning to an old expression (p. 278).

The Presentation Format

Acknowledgment of limitations

There are, of course, a number of ways in which the criticisms of Educational Technology could be conceptualized or grouped. Certainly too many to be discussed in one presentation. It is also likely that many of the possible conceptual frameworks for analyzing these criticisms would overlap. That is, certain individual criticisms could fit in more than one framework for analysis.

The Format

This presentation will revolve around the following conceptual frameworks for analyzing the criticisms of Educational Technology: 1) concerns about the development of man-machine systems; 2) concerns about technological momentum; 3) concerns about individualizing instruction; 4) concerns about gender inequities and bias; and, 5) concerns about dehumanization.

A summary of the highlights and findings of each of the five papers follows.

The analysis of man-machine systems centered on the relationship between people and machines, specifically their interactions and human self-image. The major points identified in this paper include:

1) Scientific inquiry and technological development leave a void in the spiritual and artistic side of people which needs to be expressed.

2) Technology, as an extension of people, has threatened to sever human wholeness by separating the cognitive (mind) from the psychomotor (body).

3) Engineers (and those who view education as engineering) form and develop their moral standards based on the things that they build rather than for and from the society for which they build them.

The analysis of technological momentum encompasses the following ideas: using technology because it is there; the implementation of technology requiring the need for more technology; and the deskilling of teachers because of the ever increasing use of technological design. The major points identified in this paper include:

1) That the are 2 kinds of technological momentum: a) that there is too much technology in education, and b) that technology is being introduced into education too fast.

2) Technological evolution in education has accelerated. In some instances this has resulted in the deskilling of teachers.

3) One of the major facets of technology is the concept of control. Critics of educational technology have argued that it is the technology which controls teachers, learners and the learning process rather than teachers and learners controlling technology. The implementation of technological developments needs to be controlled and not left to chance.

The analysis of individualized instruction addresses the criticisms of self-instructional systems, including; programmed learning, computer assisted instruction, and independent studies. The major points identified in this study include:

1) Individualization of instruction has meant segmenting and providing self paced approaches for individuals to learn the same material. It does not mean the selection of different material or subject matter for each learner.

2) Individualization maintains the status quo by maintaining the power and authority of the teacher in an "individualized" environment rather than a group paced one.

3) Individualization in education threatens the group and social aspects of education.

The analysis of gender inequities and bias will include focus on computer utilization from 1983-1993. The major points identified in this paper include:

1) Criticisms focus of issues involving content, form, and function. The issue of content examines the design and subject matter of software. Form is concerned with the machine hardware. And function is related to issues of access.

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2) Critics use qualitative, quantitative, and conceptual methodologies to show gender bias in the use of computers in education. Recent research suggests examination of the issue from a societal perspective rather than a technological one.

3) Educational computing experiences must allow for differing ability and interest, as well as different types of interactions.

The analysis of dehumanization will address the following: alienation because of machine implementation, and the deskilling of students and teachers because of the introduction of technological innovations. The major points identified in this paper include:

1) Technology has been represented as being value neutral. Critics challenge this idea because there are values inherent within the technology, such as efficiency, machine utilization etc..

2) Technological expansion has affected the language that is used in education. The metaphorical structure of language leads to seeing the world in technological, rather than other terms.

3) Teachers are often viewed as managers and facilitators rather than educators. Examinations of values associated with education question the desirability of this view.

Concluding comments and summation

If the criticisms of the concepts, principles and implications of educational technology can be traced back in the literature of the nineteenth century then it seems reasonable to think that the critics of the ideas behind educational technology have been around as long as these ideas which are important to educational technology have been.

I would like to make three points in closing. First, if Bob Heinich is right, and educational technology is a part of the larger idea of technology (1984), then it seems reasonable to think that many of the criticisms of educational technology will be anchored in criticisms of the larger idea of technology. And, in fact, this is accurate. Commentary on technology dates back to the first (or the early part of the) industrial revolution. This commentary, analysis, or criticism seems to take one of two basic forms. It appears as if one form is part of the world of literature like Shelley's *Frankenstein* or Vonnegut's *Player Piano*. Jim Finn had run ins with Griswold and other "humanities types". The other basic form is a more scholarly/academic or social science based approach. This group can be represented by the work of Karl Marx, Lewis Mumford, and Jacques Ellul. There are many more commentaries in the literature that follow a social science based approach. Both groupings of these critics tend to focus on the areas of "the human condition", the meaning of progress, and moral questions about technology.

The second thing is that there are a good many critics of educational technology represent other perspectives in the broader field of education. Michael Apple and Henry Giroux are two of many important writers in this area. While these critics raise many questions it seems to me that they all include the same base notion. That educational technologists and others may have fundamental differences in the purposes and meaning of the concept of education, and in the processes involved in bringing those purposes to reality. A serious conceptual question about education.

Third, as the field matured, a number of criticisms were posed by individuals within the field. These criticisms included moral, epistemological, and procedural questions. These criticisms were the result of different interpretations of the concept of educational technology within the field itself. This resulted in alternative priorities, plans, and paradigms for educational technology (e.g.. Eraut, 1985).

There have been many criticisms leveled against the ideas and use of Educational Technology. This presentation will have served as a way to see the relationships between various approaches or conceptual frameworks of the criticisms of the field. Understanding the various criticisms and their relationships to each other is essential to moving our field forward.

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